SONY®

STEREO TURNTABLE SYSTEM

PS-LX500

OPERATING INSTRUCTIONS Page 2

Before operating the unit, please read this manual thoroughly.
This manual should be retained for future reference.

MODE D'EMPLOI page 14

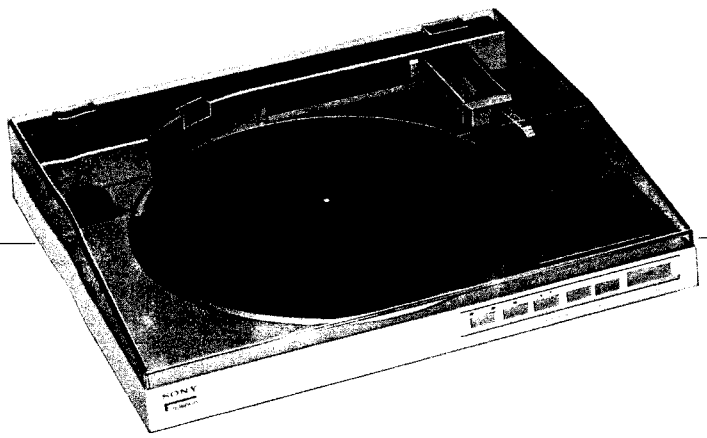
Avant la mise en service de l'appareil, lire attentivement ce mode d'emploi.
Conserver ce manuel pour toute référence ultérieure.

BEDIENUNGSANLEITUNG Seite 26

Vor Inbetriebnahme lesen Sie bitte diese Bedienungsanleitung aufmerksam durch.
Bewahren Sie diese Anleitung zum späteren Nachschlagen gut auf.

MANUAL DE INSTRUCCIONES Página 38

Antes de utilizar el aparato, lea este manual detenidamente, y consérvelo para futuras referencias.



© 1983 by Sony Corporation

English

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

TABLE OF CONTENTS

Features 2
Operating voltage 3
Precautions 3
Location and function of controls 4
Turntable assembly 5
Connections 6
Record playing 7
- Preparation
- Auto play
- To begin record play at a particular point—Manual play
- To move to a different part of a record while the record is playing
- To lift up the stylus during play
- To stop during play
- To repeat play

Tips on record handing 8
How the auto-record-size selection works 9
Replacing the stylus 9
Tracking force fine adjustment 10
Synchronized play of the turntable and a cassette deck 10
Remote control operation with an optional remote controller 11
Maintenance 11
Specifications 11
Trouble checks 12

FEATURES

Linear tracking tonearm
A linear tracking tonearm is designed to duplicate the movement of the head which cuts the record master.
Compared with a pivoted tonearm, a linear tracking arm has a very small tracking error (which means greatly reduced harmonic distortion) and almost no pressure on the inside wall of the groove (which means improved tracking ability and channel separation).

Front panel operation with the dust cover closed
The ARM TRANSPORT buttons allow you to move the tonearm easily over the desired point of the record with the dust cover closed. Start/stop of the record play and tonearm up/down can also be controlled using the buttons on the front panel.

Fully automatic system
The movement of the turntable and the tonearm is controlled by a microcomputer and is activated by the "feather-touch" function buttons on the front panel.

Automatic record size selection
The record size is automatically set by a photo sensor system. If no record is on the turntable, the tonearm will not descend but will automatically return to the arm rest.

Muting system
A muting system activates when the tonearm is lifted and is deactivated after the tonearm lowers onto a record so there is no need to turn the amplifier volume down every time a stylus is placed on a record.

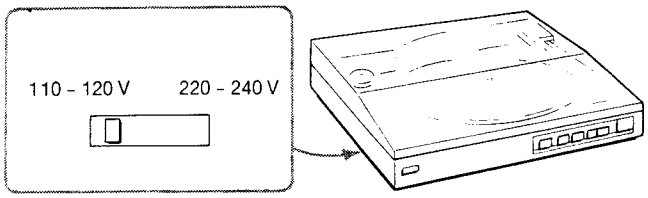
Linear torque BSL motor
Direct drive system with Sony's unique BSL (brushless and slotless) motor which has an extremely low noise level and whose smoothness virtually eliminates wow and flutter. Its high torque assures a quick start to 33 1/3 rpm after only a half revolution.

Synchronized operation with the Sony cassette decks
When the tonearm lowers onto the lead-in groove of a record, the cassette deck stand-by mode is released and the record mode assumed. When play finishes, the cassette deck is automatically set first in the record muting mode, then in the pause mode. This synchronized operation is possible with Sony cassette decks equipped with a four-pin remote control jack which is connected with the Sony RM-65 synchro remote control unit.

Wireless remote control operation
Using the optional RM-44 system remote controller, start/stop play and tonearm up/down can be remotely controlled.

OPERATING VOLTAGE

Before connecting the unit to the power source, check that the operating voltage of your unit is the same as the local power line voltage.
The continental European model (Type 1) operates on 220 V ac.
The United Kingdom model (Type 2) operates on 240 V ac.
The model for other countries (Type 3) operates on either 110 - 120 or 220 - 240 V ac. The voltage selector is located on the bottom. If the selector must be reset, **disconnect the ac power cord** and slide the selector to the appropriate voltage.



For the Customers in the United Kingdom

The mains lead plug of this apparatus is a 2-pin type designed to be connected only to other apparatus equipped with a suitable socket outlet.
If the plug cannot be used in this way, cut off the plug and fit an appropriate one as follows.

IMPORTANT
The wires in the mains lead are coloured in accordance with the following code :

Blue : Neutral
Brown : Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows :
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

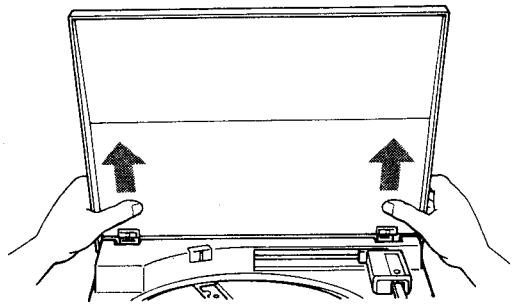
WARNING
To prevent shock hazard, do not insert the plug cut off from the mains lead into a socket outlet. This plug cannot be used and should be discarded.

PRECAUTIONS

On safety
- Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- The unit is not disconnected from the ac power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.

On installation
- Place the turntable on a level surface.
- Avoid placing the unit near electrical appliances (such as a television, hair dryer, or fluorescent lamp) which may cause hum or noise.
- Place the turntable where it will not be subject to any vibration, such as from speakers, slamming of doors, etc.
- Keep the unit away from direct sunlight, extremes of temperature, and excessive dust and moisture.

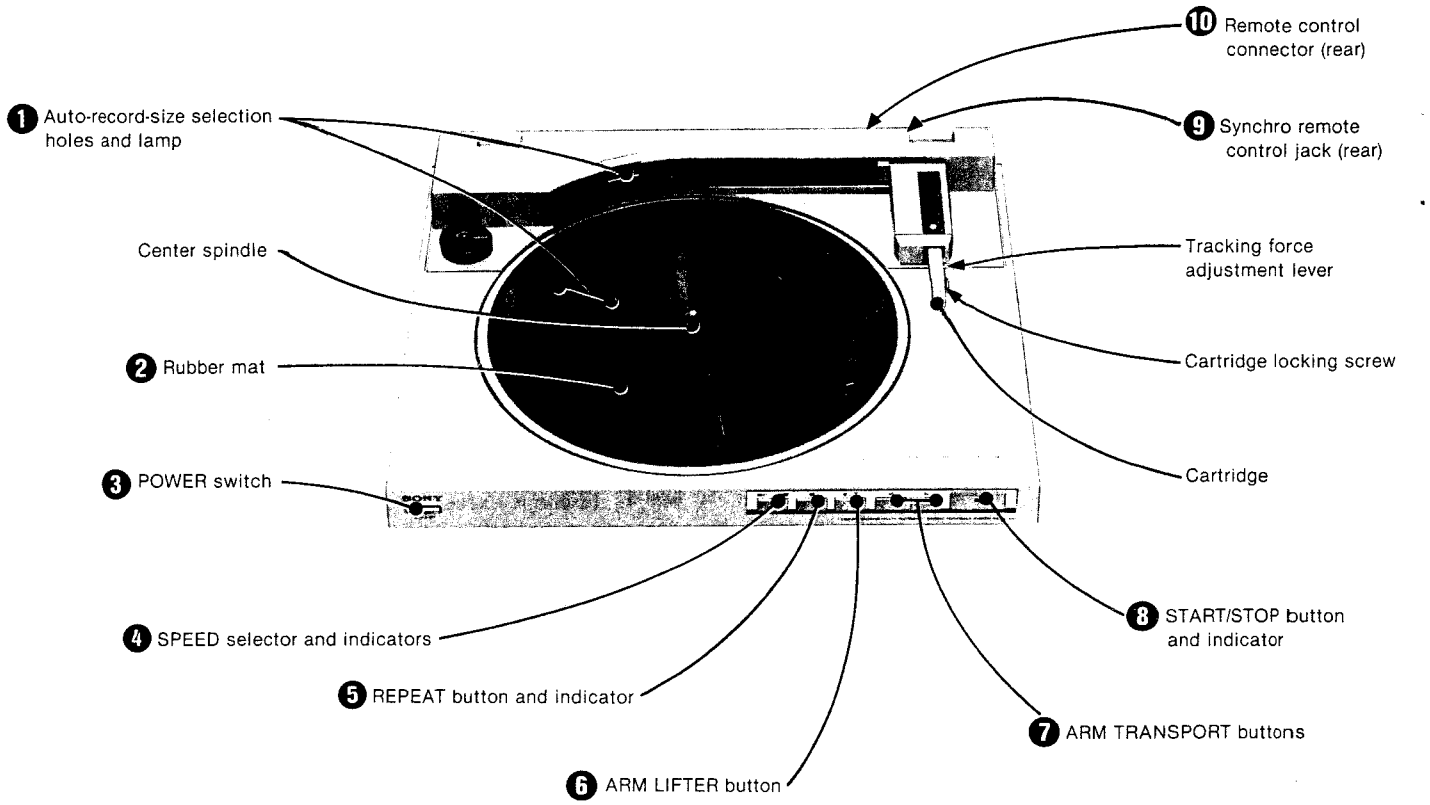
On dust cover removal
Open the dust cover fully and slide it upward with both hands.



On repacking
Do not throw away the carton and packing materials. It is an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton box.
Before repacking, secure the tonearm using the arm clamp, spacers and transit screws as illustrated on page 5.

LOCATION AND FUNCTION OF CONTROLS

The photo below shows the assembled turntable.


❶ Auto-record-size selection holes and lamp
Center spindle
❷ Rubber mat
❸ POWER switch
❹ SPEED selector and indicators
❺ REPEAT button and indicator
❻ ARM LIFTER button
❼ ARM TRANSPORT buttons
❽ START/STOP button and indicator
❾ Synchro remote control jack (rear)
❿ Remote control connector (rear)
Tracking force adjustment lever
Cartridge locking screw
Cartridge

❶ Auto-record-size selection holes and lamp
Record size is automatically selected by a beam transmitted from a lamp through the holes on the rubber mat and the platter to the photo detectors underneath the platter. When no record is on the platter, the tonearm will not lower onto the turntable.

❷ Rubber mat
Place the rubber mat so that the holes for auto-record-size selection on the rubber mat and on the platter are matched correctly.

❸ POWER switch
Press to turn on the turntable. To turn the turntable off, press it again.

❹ SPEED selector and indicators
Selects the record speed. When the POWER switch is turned on, the speed is always 33⅓ rpm and the indicator on the right illuminates. When the selector is pressed, 45 rpm is selected and the indicator on the left illuminates.

❺ REPEAT button and indicator
Press this button to repeat play. The indicator illuminates and repeat play continues until this button is pressed to stop it. If the START/STOP button is pressed during repeat play, the tonearm returns to the arm rest and the turntable stops rotating.

❻ ARM LIFTER button
This button lifts and lowers the tonearm.
When the tonearm is on the arm rest, it cannot be lifted up with this button.

❼ ARM TRANSPORT buttons
To move the tonearm inwards, press the ◄ button. To move it outwards, press the ► button. The tonearm is raised automatically and continues to move while the button is depressed. The tonearm will stop when the button is released. For fine adjustment of the tonearm drop-point over a record, press and immediately release the appropriate button. This button is useful for beginning a record partway through, or for skipping to another selection.

❽ START/STOP button and indicator
Press this button to start the record playing, and the indicator illuminates. To stop during play, press it again.

❾ Synchro remote control jack (rear)
Synchronized recording from disc to tape is possible on specified Sony cassette decks by using the optional RM-65 synchro remote control unit.

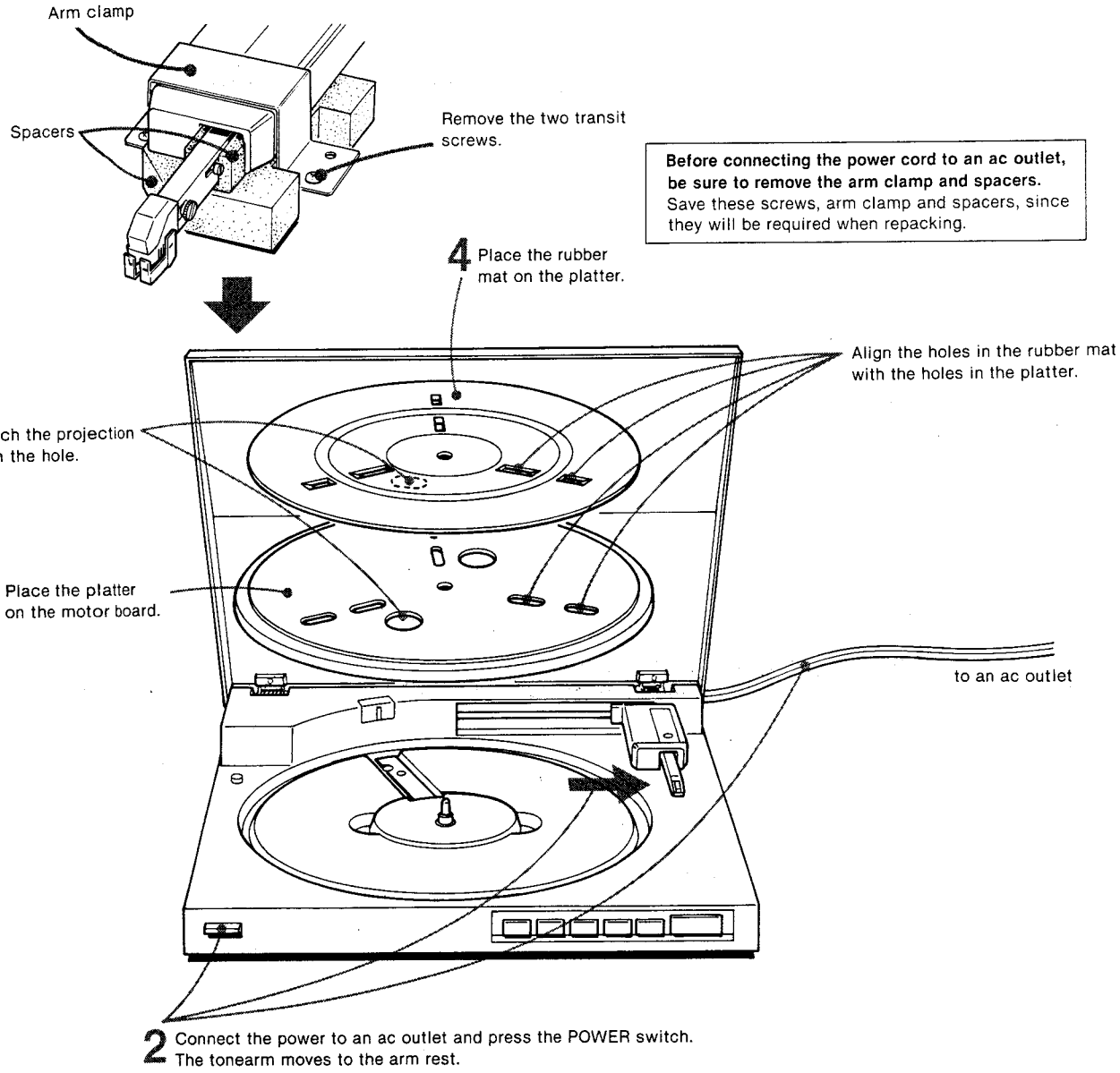
❿ Remote control connector (rear)
Connect the remote control cord supplied with the RM-44 system remote controller (optional) to this connector.

TURNTABLE ASSEMBLY

Remove all packing material and wipe off the cabinet.
Save the packing box and materials for possible future use.

Follow the numbered sequence.

1 Remove the arm clamp and spacers.

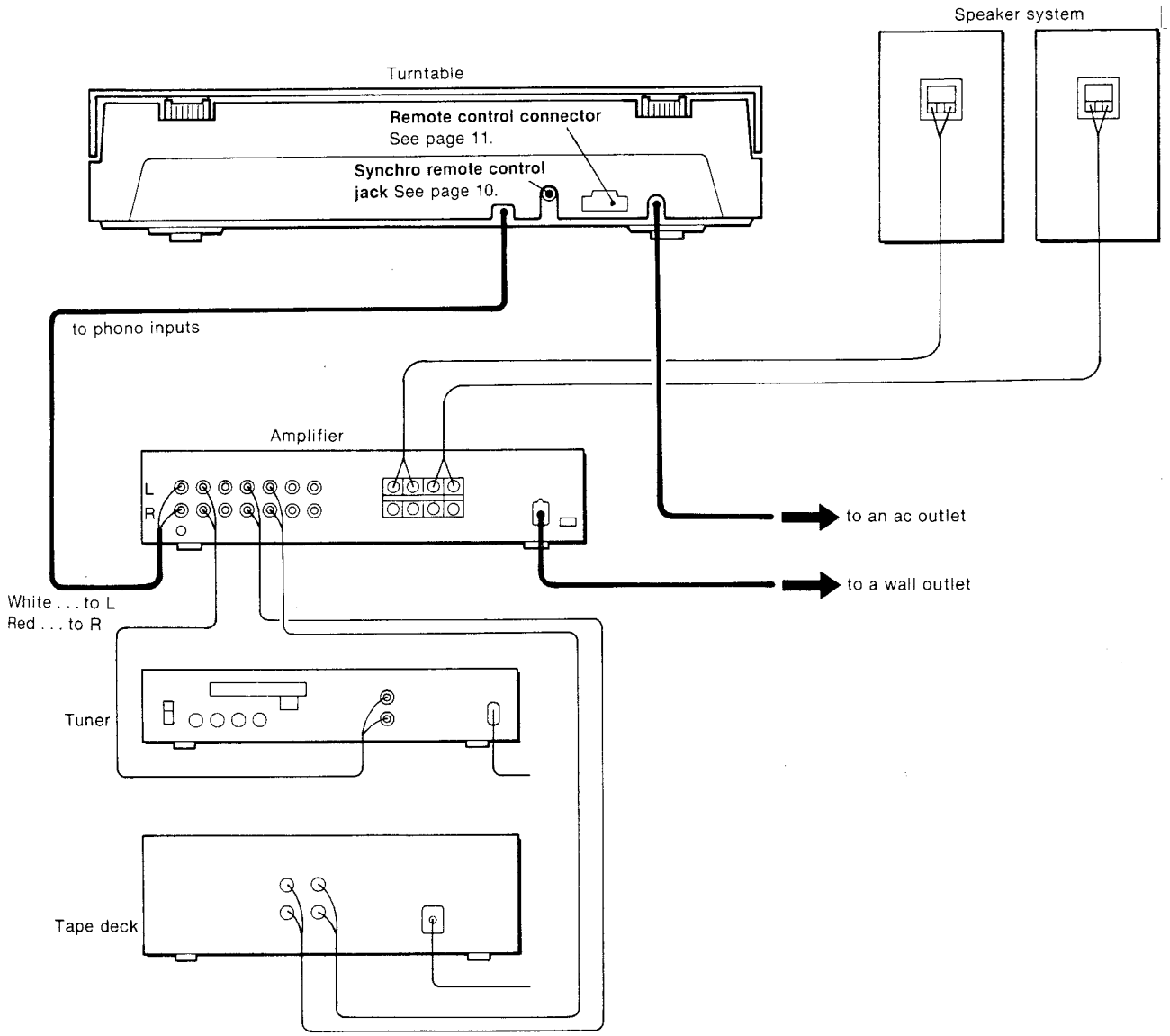

Arm clamp
Spacers
Remove the two transit screws.
4 Place the rubber mat on the platter.
Align the holes in the rubber mat with the holes in the platter.
Match the projection with the hole.
3 Place the platter on the motor board.
to an ac outlet
2 Connect the power to an ac outlet and press the POWER switch.
The tonearm moves to the arm rest.

Before connecting the power cord to an ac outlet, be sure to remove the arm clamp and spacers.
Save these screws, arm clamp and spacers, since they will be required when repacking.

After having assembled the turntable, make sure that the tracking force adjustment lever is set to the center position (see page 10.)

CONNECTIONS

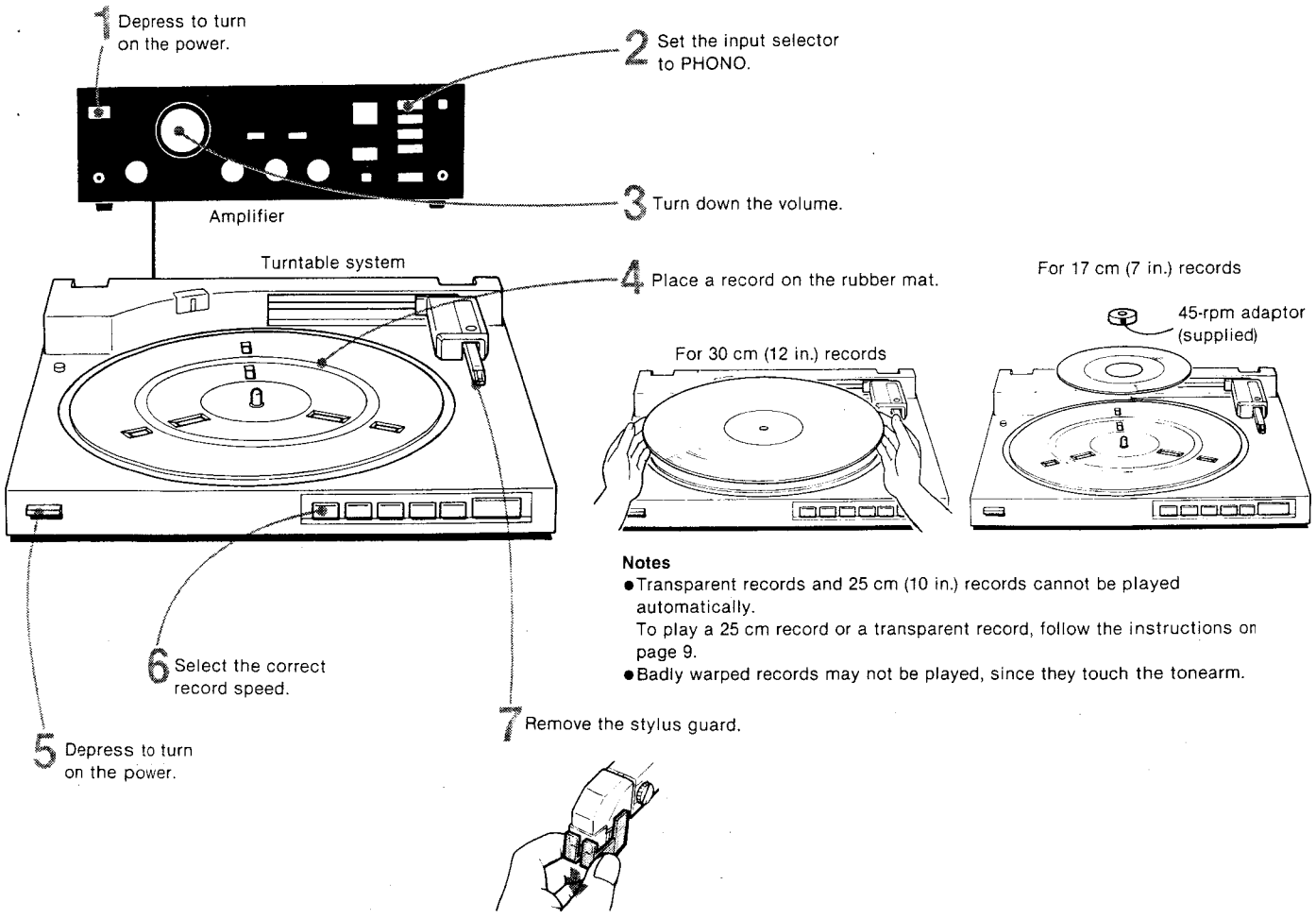
- Turn off the amplifier before making connections.
- Be sure to insert the cable connectors firmly into the jacks. Loose connections may cause hum and noise.
- Connect the red plug of the connecting cord to the right-channel jack [R] of the amplifier and the white plug to the left-channel jack [L]. Otherwise, the right and left channels will be reversed.
- Leave a little slack in the connecting cord to allow for inadvertent shock or vibration.
- If the turntable causes interference to radio and television reception, turn off the turntable or move it away from the receiver.



RECORD PLAYING

PREPARATION

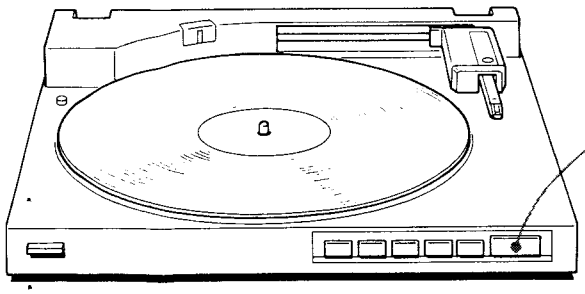
When the POWER switch is turned on, the record speed will always be 33⅓ rpm unless the SPEED selector is pressed to select 45 rpm.


1 Depress to turn on the power.
2 Set the input selector to PHONO.
Amplifier
3 Turn down the volume.
Turntable system
4 Place a record on the rubber mat.
For 17 cm (7 in.) records
45-rpm adaptor (supplied)
For 30 cm (12 in.) records
6 Select the correct record speed.
5 Depress to turn on the power.
7 Remove the stylus guard.

Notes

- Transparent records and 25 cm (10 in.) records cannot be played automatically.
  To play a 25 cm record or a transparent record, follow the instructions on page 9.
- Badly warped records may not be played, since they touch the tonearm.

AUTO PLAY

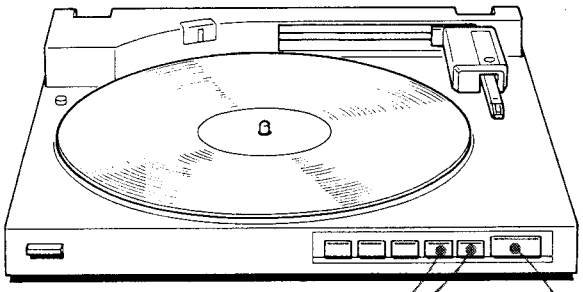


When the tonearm reaches the end of the record, the turntable will stop and the tonearm will automatically return to the arm rest.

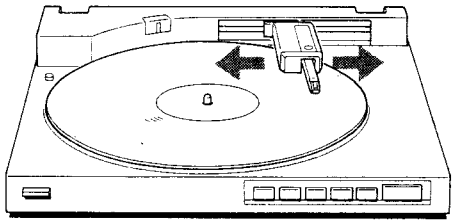
Note

Turn off the POWER switch after the tonearm returns to the arm rest. If the POWER switch is turned off while playing or while the tonearm is returning to the arm rest, the tonearm will stop at that point, and will continue returning to the arm rest when the POWER switch is turned on the next time. While the tonearm is returning, the START/STOP button does not activate the record playing.

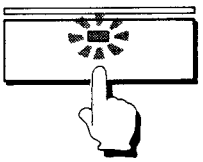
TO BEGIN RECORD PLAY AT A PARTICULAR POINT—Manual play



1 Move the tonearm over the desired point of the record, pressing the ◄ button. For fine adjustment, press and immediately release the ◄ button or the ► button.



2 Press the START/STOP button.



The turntable starts rotating, the stylus lowers onto the record and playback starts.

When the tonearm reaches the end of the record, the turntable will stop and the tonearm will automatically return to the arm rest.

TO MOVE TO A DIFFERENT PART OF A RECORD WHILE THE RECORD IS PLAYING

Keep the appropriate ARM TRANSPORT button pressed until the tonearm reaches the desired position. For fine movement, press and immediately release the appropriate button. To lower the tonearm onto the record, press the ARM LIFTER button.

TO LIFT UP THE STYLUS DURING PLAY

To lift the stylus from a record for a moment and then start playing from the same point, press the ARM LIFTER button. To lower the tonearm onto the record, press the button again.

TO STOP DURING PLAY

Press the START/STOP button. The turntable will stop rotating and the tonearm will return to the arm rest.

TO REPEAT PLAY

Press the REPEAT button either before or after starting play. The tonearm continues repeat play unless the button is pressed again to turn off the repeat function. To stop during repeat play, press the START/STOP button.

Note

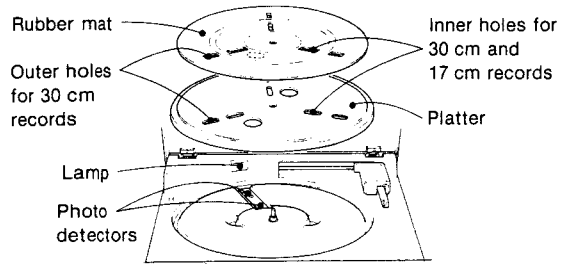
Transparent records and 25 cm (10 in) records cannot be played repeatedly.

TIPS ON RECORD HANDLING

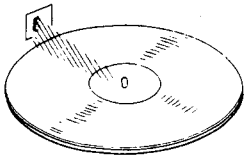
- Before playing, clean the record with a record cleaner or soft cloth. If a spray cleaner is used, make sure that it has dried completely before playing the record. Playing the record before the cleaner has dried may damage the record.
  It is a good idea to clean the record again before putting it away.
- Handle a record by its edges and do not touch the grooves.
  Fingerprints on the record surface may encourage an accumulation of dust, resulting in impaired tone.
- Use a commercially available anti-static spray to neutralize the static electricity on a record.
- Avoid exposing a record to direct sunlight or sources of heat, such as a hot-air duct.
- Store your records vertically. They should not be compressed.

HOW THE AUTO-RECORD-SIZE SELECTION WORKS

When the START/STOP button is pressed, the tonearm goes automatically into the lead-in groove, whether the record is 30 cm or 17 cm. A beam from the lamp is transmitted through the holes on the rubber mat and the platter to the photo detectors which activate the auto record size selection.

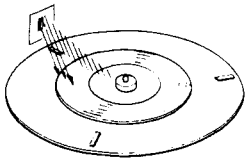


When a 30 cm record is to be played,



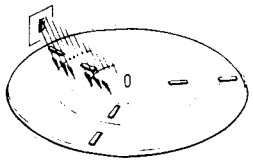
both inner and outer holes are covered so no beam is transmitted to the photo detectors.

When a 17 cm record is to be played,



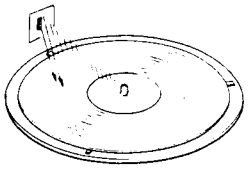
the inner holes are covered so a beam is transmitted through the outer holes to the photo detector.

When there is no record on the platter,



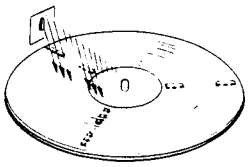
a beam is transmitted through both the inner and outer holes to the photo detectors. Even if the START/STOP button is accidentally pressed, the tonearm does not lower.

When a 25 cm record is to be played,



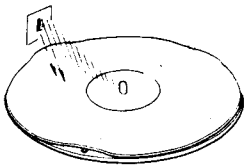
the tonearm lowers to the same point that it would if a 30 cm record were on the platter, since both the inner and outer holes are covered. To play a 25 cm record, move the tonearm over the lead-in groove with the ARM TRANSPORT buttons and press the START/STOP button.
At the end of the record, the tonearm will automatically return to the arm rest.

When a transparent record is to be played,



a beam passes through both the inner and outer holes to the detectors so the tonearm does not lower onto the record. To play a transparent record, move the tonearm over the lead-in groove with the ARM TRANSPORT buttons, press the ARM LIFTER button to lower the stylus and press the START/STOP button.
In this case, auto-return will not activate at the end of the record. Press the START/STOP button to return the tonearm to the arm rest.

When a badly warped record is to be played,

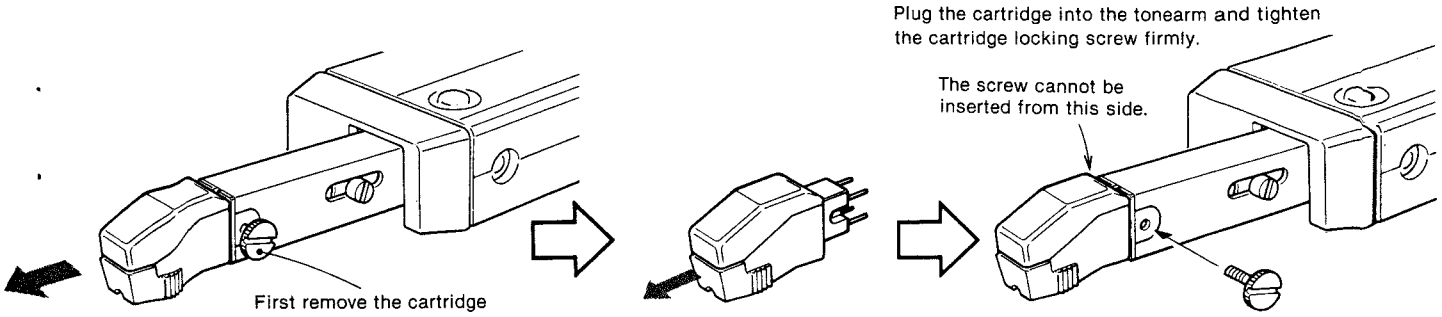


a beam may pass through the holes to the detector(s) and cause a malfunction of the auto-record size selection.

REPLACING THE STYLUS

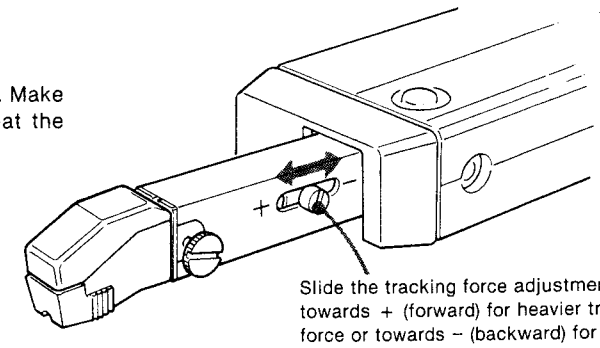
The stylus will lose its effectiveness and begin to damage records after about 400 hours of use.
An ND-250G replacement stylus is available at your Sony dealer.
Handle the stylus carefully as it is very delicate.
Install the replacement stylus as follows.

The T4P label indicates that a cartridge is a standardized plug-in type.


First remove the cartridge locking screw and remove the cartridge.
Detach the stylus assembly and insert a new stylus into the cartridge.
Plug the cartridge into the tonearm and tighten the cartridge locking screw firmly.
The screw cannot be inserted from this side.

TRACKING FORCE FINE ADJUSTMENT

The tracking force has been correctly adjusted at the factory. Make fine adjustment only when the tracking force is so light that the stylus skips grooves.



Slide the tracking force adjustment lever towards + (forward) for heavier tracking force or towards − (backward) for lighter

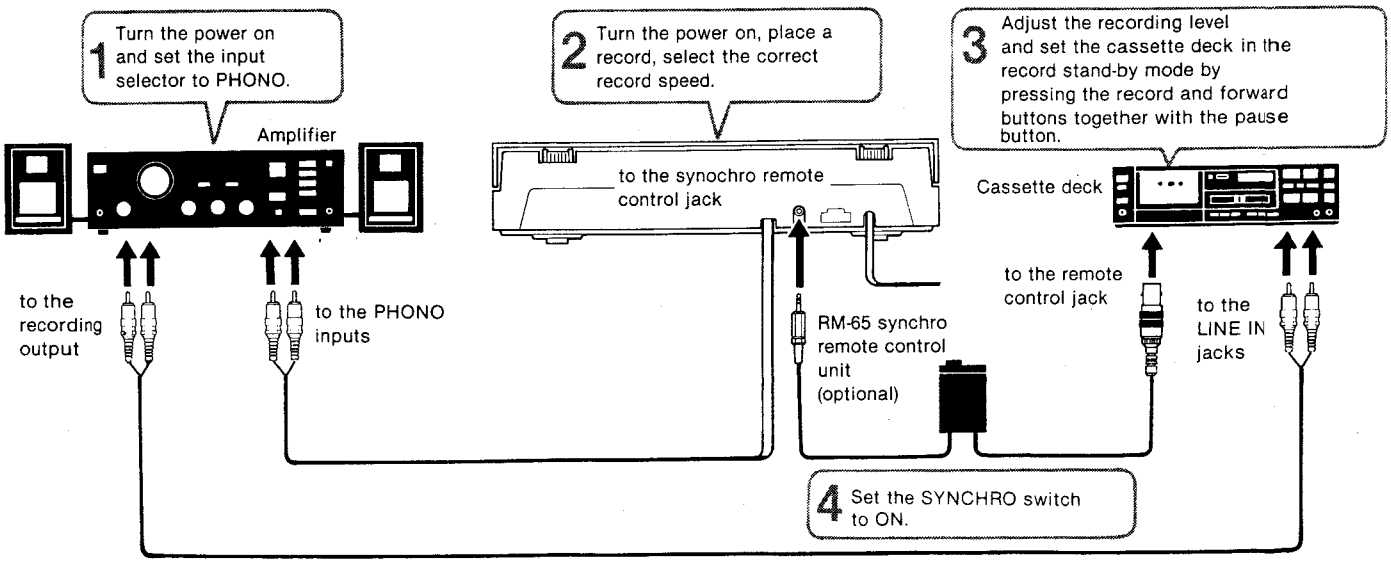
SYNCHRONIZED PLAY OF THE TURNTABLE AND A CASSETTE DECK

——with an RM-65 synchro remote control unit connected

Record recording starts only when the START/STOP button is pressed. When the tonearm lowers onto the record, the cassette deck goes into the record mode and, when the tonearm is lifted up, the deck goes into the auto record muting mode for four seconds, then into the pause mode.

Cassette decks which can be used with your turntable for this special synchronized operation are those Sony models which are equipped with a 4-pin remote control jack.
An RM-65 synchro remote control unit (optional) is required to connect the turntable and the cassette deck.

CONNECTION AND PREPARATION


1 Turn the power on and set the input selector to PHONO.
2 Turn the power on, place a record, select the correct record speed.
3 Adjust the recording level and set the cassette deck in the record stand-by mode by pressing the record and forward buttons together with the pause button.
Amplifier
to the synochro remote control jack
Cassette deck
to the recording output
to the PHONO inputs
RM-65 synchro remote control unit (optional)
to the remote control jack
to the LINE IN jacks
4 Set the SYNCHRO switch to ON.

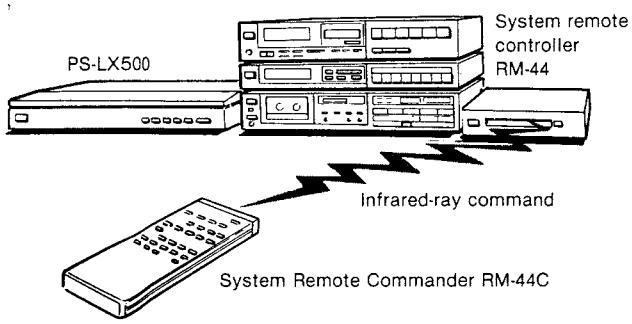
RECORDING

Desired action	Turntable operation	Synchronized operation of the cassette deck
To record from the beginning of a record...	Press the START/STOP button.	When the tonearm lowers onto the record, the pause mode is released and recording begins.
To lift up the tonearm to move to a different point on a record...	Press the ARM TRANSPORT buttons.	When the tonearm is lifted up, auto record muting activates for four seconds, then the pause mode is assumed.
To record from a point some way in the record...	Move the tonearm to the desired point and press the START/STOP button.	When the tonearm lowers onto the record, the pause mode is released and recording begins.
To stop recording during record play...	Press the START/STOP button.	When the tonearm is lifted up, auto record muting activates for four seconds, then the pause mode is assumed.
When record play ends...	The tonearm returns automatically to the arm rest.	When the tonearm is lifted up, auto record muting activates for four seconds, then the pause mode is assumed.

Note: Be sure to set the SYNCHRO switch of the RM-65 to OFF when you do not want to use the synchronized play function.

REMOTE CONTROL OPERATION WITH AN OPTIONAL REMOTE CONTROLLER

The optional RM-44 system remote controller controls the following functions of the turntable: power on/off, start/stop of the record play, tonearm up/down and synchronized operation with the Sony cassette decks using the optional RM-65 synchro remote control unit. This remote controller, with its infrared ray sensor, can control connected components by a infrared ray transmitted from the RM-44C Remote Commander supplied with the system remote controller's instruction manual.



MAINTENANCE

Stylus
Before playing a record, clean the stylus with a soft brush. Brush the stylus from back to front. Never attempt to clean the stylus with your finger tip. If a fluid stylus cleaner is used, make sure not to moisten the stylus too much.

Cabinet
Clean the cabinet and dust cover periodically with a soft dry cloth. If the stains are difficult to remove, use a cloth moistened with a mild detergent solution. Do not use solvents such as alcohol, benzine or thinner, since they will damage the finish.

Rubber mat
When the rubber mat becomes dirty, wipe it gently with a soft cloth slightly dampened with water.

Lubrication
The turntable requires no periodic lubrication. The motor shaft is lubricated at the factory for the life of the turntable.

SPECIFICATIONS

Turntable

Platter	30 cm (12 in.), aluminum-alloy diecast
Motor	Linear torque BSL (brushless and slotless) motor
Drive system	Direct drive
Control system	FG servo control system
Speed	33⅓ rpm, 45 rpm
Wow and flutter	0.03% (WRMS)*, 0.035% (WRMS) ±0.045% (DIN)
Signal-to-noise ratio	75 dB (DIN-B)
Automatic system	Lead-in, return, reject, repeat, arm up/down, record size selection

Tonearm

Type	Linear tracking tonearm
Pivot-to-stylus length	75 mm (3 in.)
Tracking error	±0.1°
Tracking force adjustment range	±0.25 g
Usable cartridge	plug-in type, 6 g

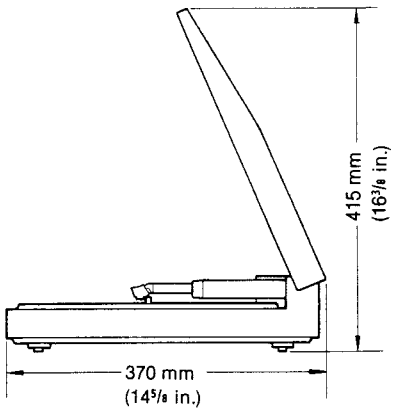
Cartridge XL-250G

Type	Moving magnet type
Frequency response	10 Hz to 20 kHz
Channel separation	23 dB at 1 kHz
Output voltage	5 mV at 1 kHz, 5 cm/sec., 45°
Load impedance	50 to 100 kilohms
Tracking force	1 to 1.5 g (1.25 g recommended)
Stylus	Sony ND-250G
Weight	6 g

General

Power requirements	Type 1: 220 V ac Type 2: 240 V ac Type 3: 110 - 120 or 220 - 240 V ac adjustable 50/60 Hz
Power consumption	10 W
Dimensions	Approx. 430 × 95 × 365 mm (w/h/d) (16⅞ × 3¾ × 14⅜ in.) including projecting parts and controls

With the dust cover opened



Weight	Approx. 5 kg (11 lbs), net Approx. 6.1 kg (13 lbs 7 oz), in shipping carton
Supplied accessory	45-rpm adaptor (1)

While the information given is correct at the time of printing, small production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications. We would ask you to check with your appointed Sony dealer if clarification on any point is required.

Note
Appliance conforms with EEC Directive 76/889 regarding interference suppression.

* This new measuring method concerns only the turntable assembly, including the platter. It excludes wow and flutter caused by the tonearm, the cartridge, or the record. Measured by obtaining signal from magnetic pick-up head.

TROUBLE CHECKS

The following trouble checks will help you correct most common problems encountered with a turntable system. Should any problem persist after you have made these checks, consult your nearest Sony service facility.
Before proceeding with these trouble checks, first refer to the connections and the operating procedures.

TROUBLES	CAUSES	WHAT TO DO
The tonearm does not lower onto the record.	Transparent or warped record	See page 9.
The tonearm always lowers on the point for 30 cm records.	A rubber mat other than the one supplied being used.	Use the supplied rubber mat.
	Incorrect placement of the supplied rubber mat	Align the holes in the rubber mat with the holes of the platter.
Impaired tone quality	Improper tracking force	Adjust the tracking force, referring to page 10.
	Dusty stylus	Clean the stylus with a soft brush from back to front.
	Worn stylus	The stylus life is approx. 400 hours. Replace with a new stylus.
Auto return does not operate at the end of play.	A record with shallow return grooves being played by a cartridge with low tracking force	Apply more tracking force.
No audio from one channel	Loose connection of phono cord	Connect the cord firmly.
	Dirty terminals of the cartridge	Clean the terminals with a soft dry cloth.
	Loose attachment of the cartridge to the tonearm	Tighten the cartridge locking screw firmly.
Steady low-pitched humming sound	Loose attachment of the cartridge to the tonearm	Tighten the cartridge locking screw firmly.
Groove skipping ; tonearm skating ; tonearm not advancing	Improper tracking force	Apply proper tracking force. (See page 10.)
	Turntable not level	Place the turntable on a level surface.
	Defective record	
Loud rumble or low-frequency howl *	The turntable is subjected to external vibration.	Place the turntable on a solid surface free from external vibration.
	The turntable is placed too near the speaker.	Locate the turntable as far away from the speaker as possible.

* This is called "acoustic feedback" and is caused when vibrations from the speakers are transmitted through the air or via solid objects (such as the shelves, the cabinet, the floor, etc.) to the turntable, where they are picked up by the stylus, amplified and reproduced through the speakers once again.